For Supervisor's use only

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90188

National Certificate of Educational Achievement
TAUMATA MĀTAURANGA Ā-MOTU KUA TAEA

Level 1 Science, 2006

90188 Describe aspects of biology

Credits: Five
9.30 am Tuesday 28 November 2006

Check that the National Student Number (NSN) on your admission slip is the same as the number at the top of this page.

You should answer ALL the questions in this booklet.

If you need more space for any answer, use the page(s) provided at the back of this booklet and clearly number the question.

Check that this booklet has pages 2–10 in the correct order and that none of these pages is blank.

YOU MUST HAND THIS BOOKLET TO THE SUPERVISOR AT THE END OF THE EXAMINATION.

For Assessor's use only	**Achievement Criteria**	
Achievement	**Achievement with Merit**	**Achievement with Excellence**
Describe aspects of biology. ☐	Explain aspects of biology. ☐	Discuss aspects of biology. ☐
Overall Level of Performance ☐		

You are advised to spend 40 minutes answering the questions in this booklet.

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QUESTION ONE: BACTERIA AND FUNGI

(a) Describe how bacteria reproduce. A diagram may help your answer.

(b) What is the **main condition** that causes bacteria to undergo anaerobic respiration?

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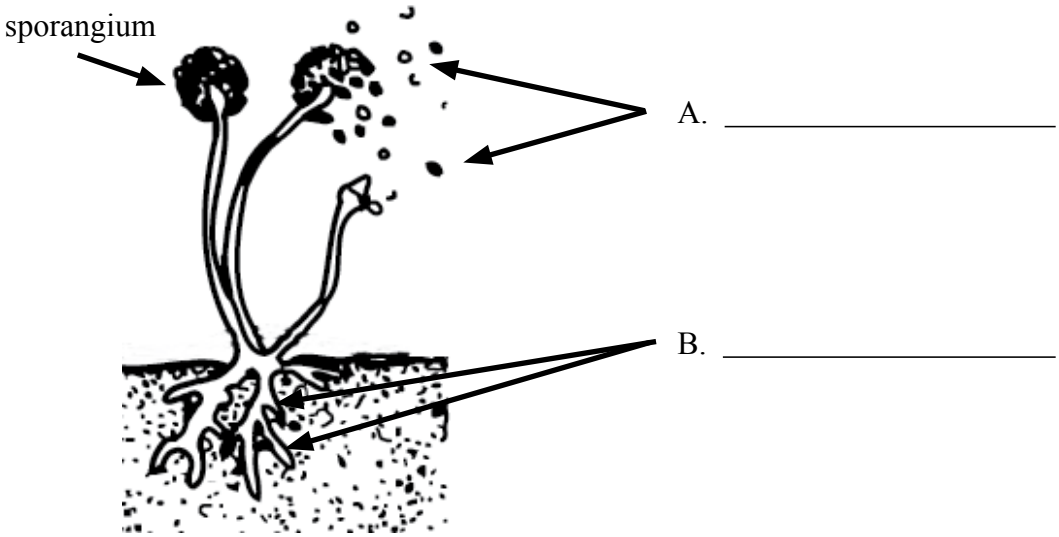
(c) Label the TWO parts of a fungus indicated on the diagram below.



(d) Explain why the sporangia in the diagram are **above** the surface.

(e) Compare and contrast **digestion** and **reproduction** in bacteria **and** fungi.

The picture shows two forms of milk. On the left is liquid milk; on the right is milk powder.

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(f) In terms of **temperature** and **water content**, discuss why milk powder can be stored for a longer time than liquid milk.

QUESTION TWO: VIRUSES

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Cold sores are caused by a virus.

(a) Describe why a virus such as the cold sore virus can **not** be cultured on a nutrient agar plate.

(b) Explain how viruses reproduce. You may draw diagrams to support your answer.

QUESTION THREE: GENETICS

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(a) There are 78 chromosomes in the body cell of an adult Shar-Pei dog. How many are found in the gamete?

_____

(b) Define the term heterozygous.

_____

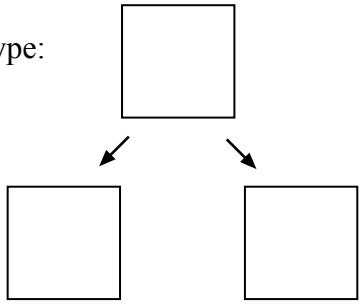
_____

In a Shar-Pei dog, the length of its coat is controlled by a gene. Normal coat (short) (**N**) is dominant to long coat (**n**). A male dog is **heterozygous** for normal coat.

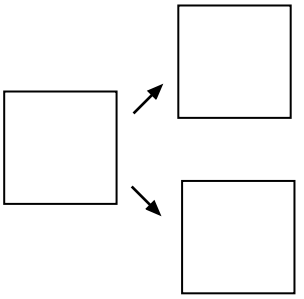
The dog is crossed with a female dog that has the **same genotype**.

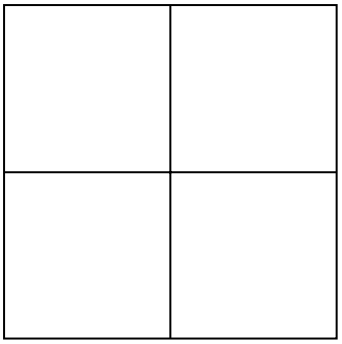
(c) Complete the Punnett Square.

Female genotype:



Male genotype:





(d) Give the **phenotype ratio** of the offspring of the cross.

_____

(e) This cross resulted in eight puppies, **two** of which had a **normal** coat. Explain why this differs from the ratio in Question 3(d).

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(f) Discuss how you could determine whether a normal-coat dog was **homozygous** or **heterozygous**. You may use Punnett squares to help answer the question.

Continue on next page.

QUESTION FOUR: CLONING

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Scientists in South Korea have claimed to have produced the first cloned dog.

Snuppy, whose name stands for Seoul National University puppy, was made from a cell taken from the ear of a three-year-old male Afghan hound.

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http://news.bbc.co.uk/1/hi/sci/tech/4742453

Discuss why a dog produced by cloning looks identical to the biological parent, whereas a dog produced by sexual reproduction looks different from the parent.

Extra paper for continuation of answers if required.
Clearly number the question.

Assessor's use only

Question number	

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Clearly number the question.

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Question number	